



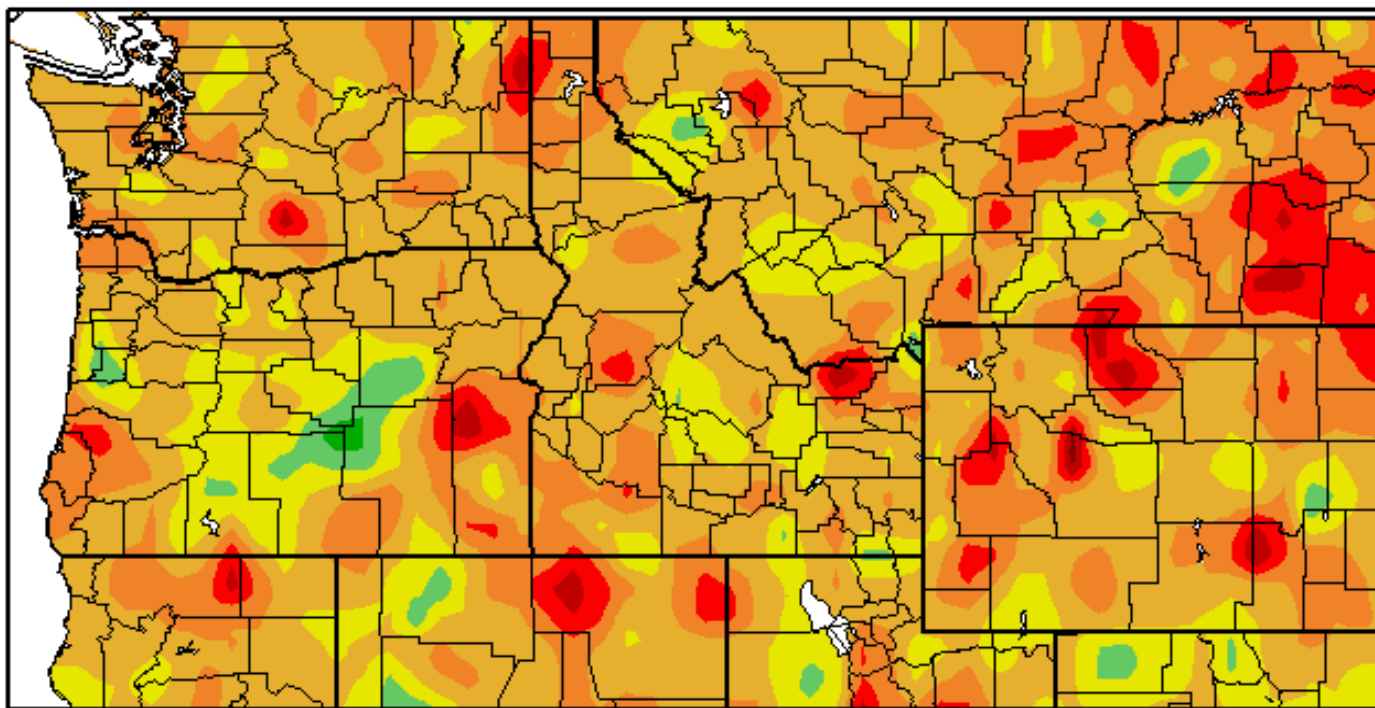
2016 Weather & Climate: Year In Review



National Weather Service Pendleton, Oregon

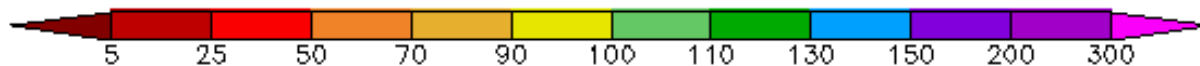
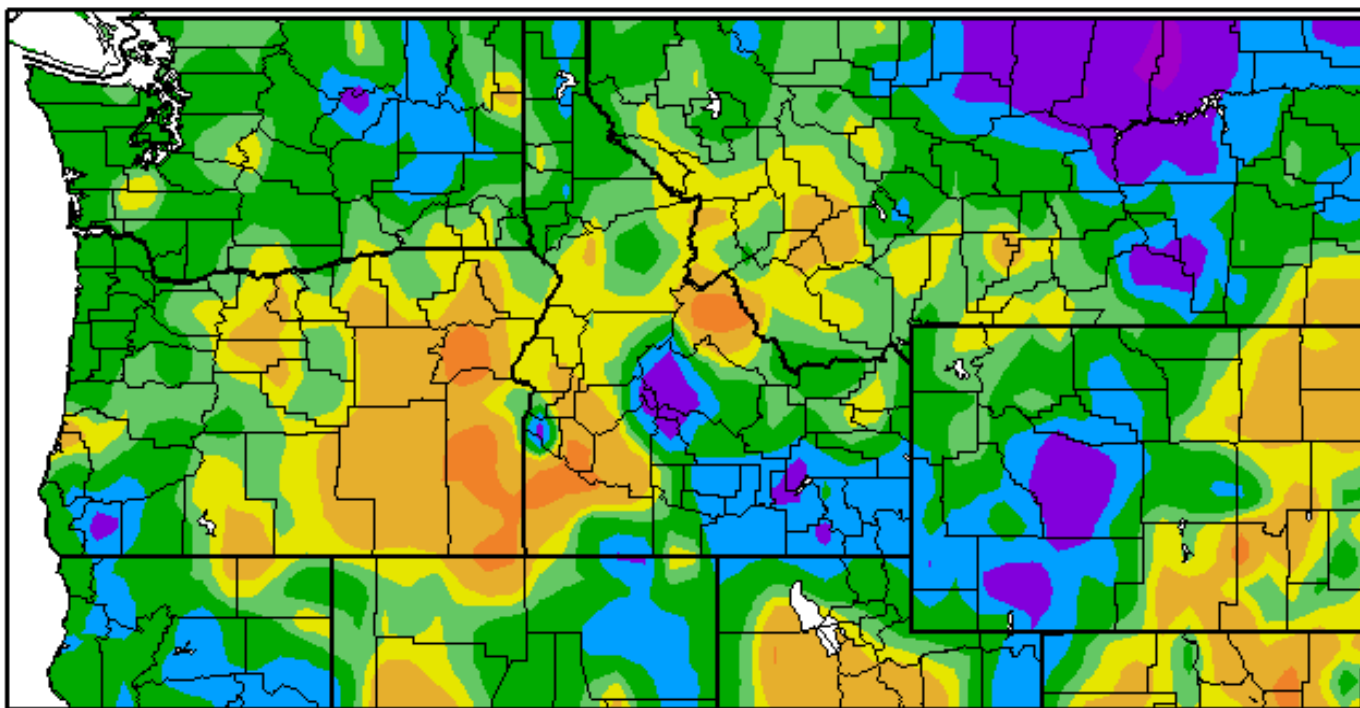
2016 Temperature Departures

Departure from Normal Temperature (F)
1/1/2016 – 12/31/2016



2016 Percent of Normal Precipitation

Percent of Normal Precipitation (%)
1/1/2016 – 12/31/2016





Top 10 Warmest Years on Record

Location	Rank	2016 Avg Yearly Temperature	Record Warmest Year (Avg T)
Yakima	#2	53.9°	55.1 in 2015
Hermiston	#2	54.8°	55.7 in 2015
Long Creek	#3	48.2°	49.1 in 2015
Ellensburg	#5	51.2°	53.3 in 2015
Prineville	#6	50.4°	52.0 in 2015
Sisters	#7	46.3°	48.1 2015
Meacham	#7	44.7°	46.8 in 1958
The Dalles	#8	55.9°	57.7 in 2015
Walla Walla	#10	55.1°	57.4 in 2015



Notable Monthly Records

Wettest Octobers On Record

City	Rank	Oct 2016 Precip Total	Current or previous Oct Max Precip
Walla Walla, WA	#1	4.55"	4.42" in 1950
Ellensburg, WA	#1	2.57"	2.11" in 2012
Hermiston, OR	#1	1.90"	1.62" in 2012
Pasco, WA	#1	2.58"	1.13" in 2000
Yakima, WA	#1	2.43"	2.22" in 1950
Madras, OR	#1	2.63"	2.21" in 1979
Moxee City, WA	#1	3.10"	2.81" in 1950
Satus Pass, WA	#1	6.27"	3.56" in 1973
McNary Dam, OR	#1	2.14"	1.53" in 2012
Mitchell, OR	#1	3.04"	2.42" in 1998
Wickiup Dam, OR	#1	5.74"	2.67" in 1982



Notable Monthly Records

Top 5 Coldest Average December Monthly Temperature

City	Rank	Dec 2016 Avg T	Current or Previous Coldest Dec Avg T
Meacham, OR	#2	21.3°	21.2 in 1972
Redmond, OR	#2	24.1°	23.0 in 1983
John Day, OR	#2	24.7°	23.8 in 1983
La Grande, OR	#2	23.3°	21.3 in 1985
Monument, OR	#2	25.2°	21.9 in 1985
Sisters, OR	#2	21.9°	20.5 in 1985
Pasco, WA	#3	27.9°	26.3 in 2009
Grizzly, OR	#3	25.0°	23.4 in 1948



Notable Monthly Records

Top 5 Monthly Snowfall Records for December

City	Rank	Dec 2016 Snowfall	Current or Previous Highest Dec Snowfall
Pelton Dam, OR	#1	16.0"	11.0" in 1985
Walla Walla, OR	#2	16.9"	23.4" in 1983
Sunriver, OR	#2	29.8"	30.9" in 2008
Spray, OR	#2	13.8"	22.3" in 2008
Pendleton, OR	#3	18.5"	32.5" in 2008
Dayton, WA	#3	19.0"	24.2" in 2008
Antelope, OR	#3	18.0"	29.0" in 1968



Top 10 Extreme Weather Events in 2016





Runner Up: November Warmth

- Indian Summer continued into November across eastern Washington and eastern Oregon. In Washington, it was the warmest November on record statewide and second warmest on record in Oregon. Individual stations in Washington which set records for warmest November include Walla Walla, Ellensburg, Pasco, Yakima, Easton, and Moxee City. In Oregon, record warmth was set at The Dalles, Hermiston, Pendleton, Antelope, Grizzly, La Grande, and Monument. Precipitation was below normal and mountain snowpack well behind normal.

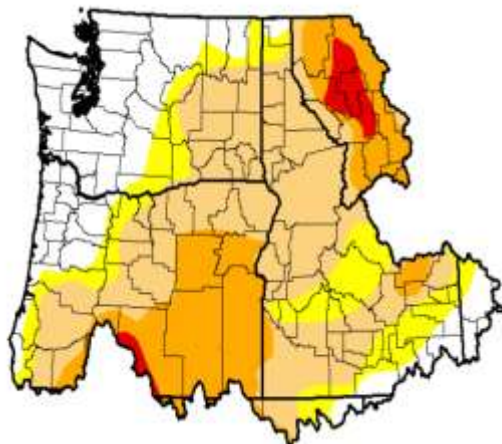




#10: Drought Conditions Gradually Eased through the Year

- Moderate to severe drought was diminished in March, made a comeback in June, and finally eased to just abnormally dry in December. The mid December rating was the least drought coverage for the area since November 2013.

U.S. Drought Monitor Pacific Northwest Watershed



January 5, 2016
(Released Thursday, Jan. 7, 2016)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	24.36	75.64	80.48	32.00	2.41	0.00
Last Week 12/29/15	24.36	75.64	82.17	38.33	14.33	0.00
3 Months Ago 10/05/15	2.55	97.45	93.12	82.45	55.01	0.00
Start of Calendar Year 12/01/15	24.36	75.64	82.17	38.33	14.33	0.00
Start of Water Year 10/01/15	0.00	99.87	94.03	81.83	56.25	0.00
One Year Ago 1/05/15	35.21	64.79	48.37	24.53	11.14	0.00

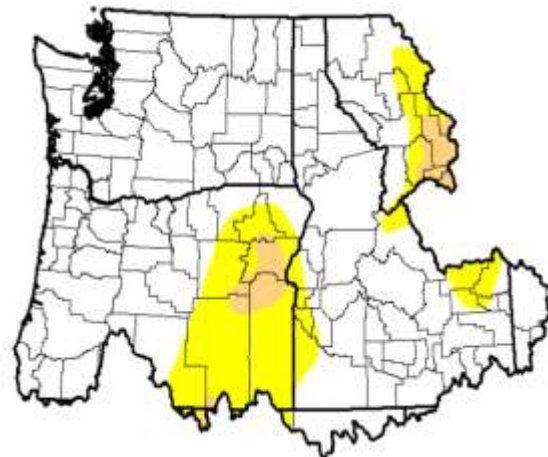
Intensity

D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought
D2 Severe Drought	

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Brian Fuchs
National Drought Mitigation Center

U.S. Drought Monitor Pacific Northwest Watershed



December 27, 2016
(Released Thursday, Dec. 29, 2016)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	81.44	18.56	3.30	0.00	0.00	0.00
Last Week 12/20/16	76.77	23.23	9.83	0.93	0.00	0.00
3 Months Ago 10/01/16	5.00	94.91	26.53	5.68	0.00	0.00
Start of Calendar Year 12/01/16	24.36	75.64	82.17	38.33	14.33	0.00
Start of Water Year 10/01/16	5.00	94.91	26.53	5.68	0.00	0.00
One Year Ago 12/27/15	24.36	75.64	82.17	38.33	14.33	0.00

Intensity

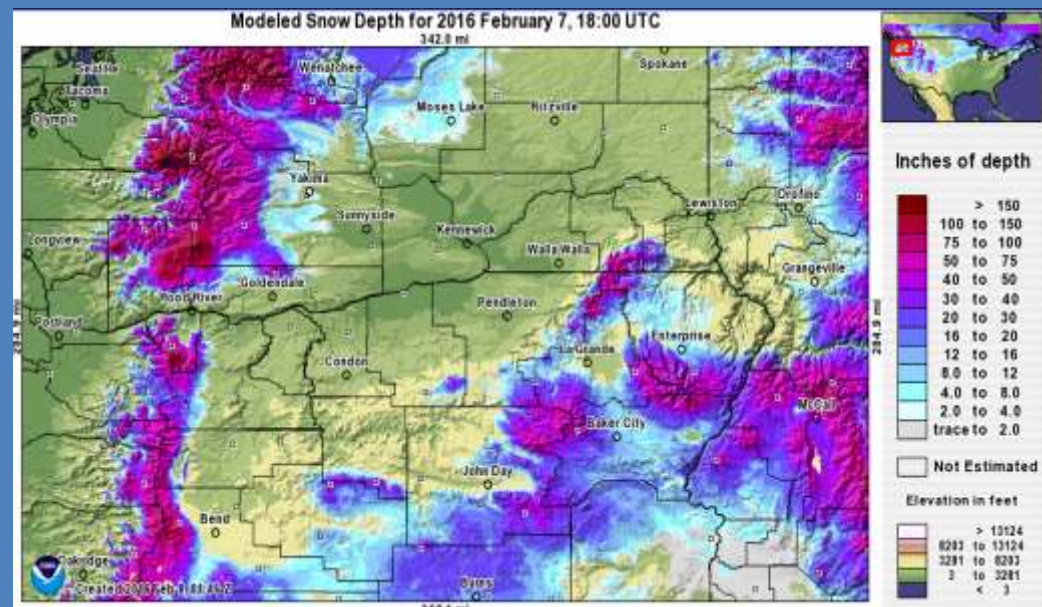
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought
D2 Severe Drought	

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Brad Rippey
U.S. Department of Agriculture

#9: Snowless January & February

- Many stations in the southern Columbia Basin went through the entire months of January and February without measurable snowfall. In Washington, this included Dayton, Ice Harbor Dam, Walla Walla, and Whitman Mission. In Oregon, a snowless end of winter was observed at Heppner, Hermiston, Madras, Milton-Freewater, Pendleton, and Pilot Rock. Snowpack in the mountains also suffered decreases.

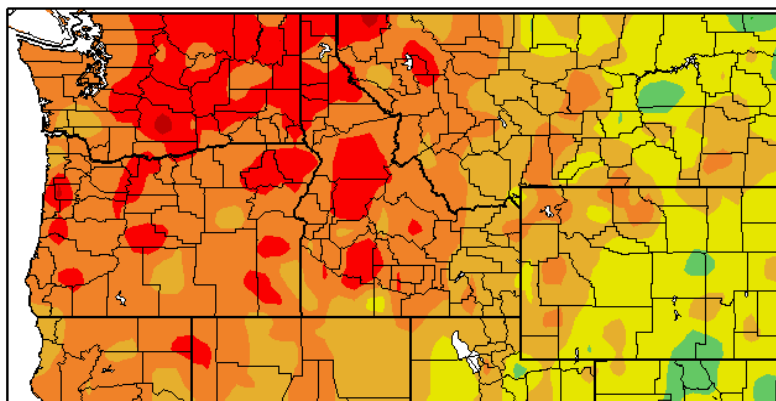




#8: Record Warm & Dry April

- It was the warmest April on record in Washington at Walla Walla, Ellensburg, Yakima, Cle Elum, Kennewick, Moxee City, and Richland. In Oregon, it was the warmest April on record at The Dalles, Hermiston, La Grande, and Pelton Dam. Ellensburg beat their previous record warm April by near 5 degrees. Couple the unseasonable warmth with a drier than normal month and the mountain snowpack virtually disappeared.

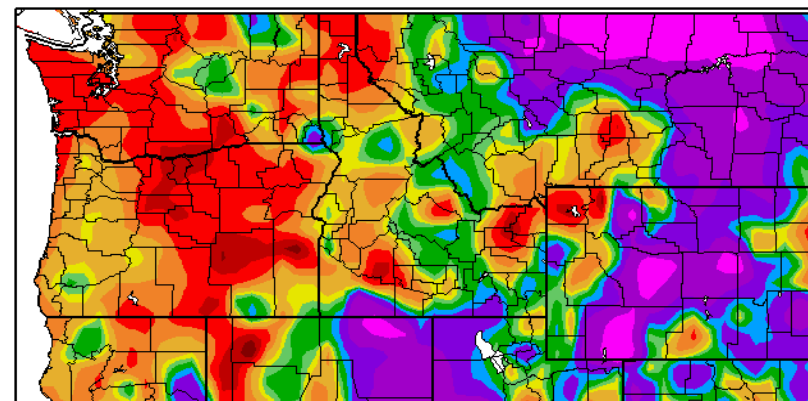
Departure from Normal Temperature (F)
4/1/2016 – 4/30/2016



Generated 5/2/2016 at HPRCC using provisional data.

Regional Climate Centers

Percent of Normal Precipitation (%)
4/1/2016 – 4/30/2016



Generated 5/2/2016 at HPRCC using provisional data.

Regional Climate Centers



#7: May 21st Tri-Cities Tornado

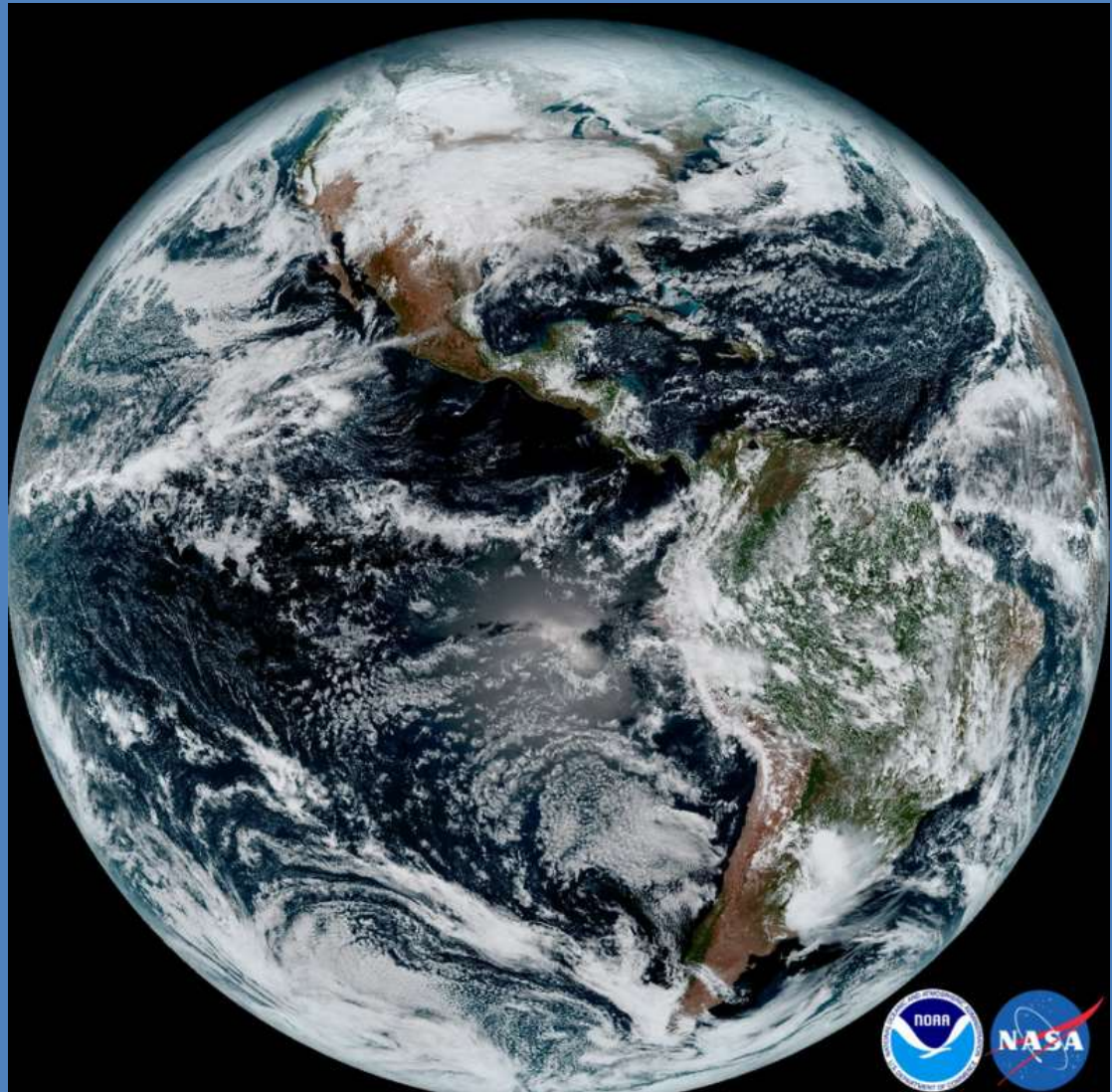
- An intense, but short lived thunderstorm brought a brief EF0 tornado in Kennewick on the late evening of May 21. The thunderstorm also produced hail up to $\frac{3}{4}$ inch, damaging winds which downed trees, and localized flash flooding.





#6: Launch of the GOES-R Satellite

- The next generation of weather satellites began with the launch of GOES R on November 19. GOES R reached geostationary orbit as was re-named GOES 16 at the end of the month. After sensor deployment, calibration, and checkout, it promises to revolutionize satellite imagery and data collection. It has 4 times the image resolution and can take an image every minute. It also has the capability to track thunderstorm lightning.

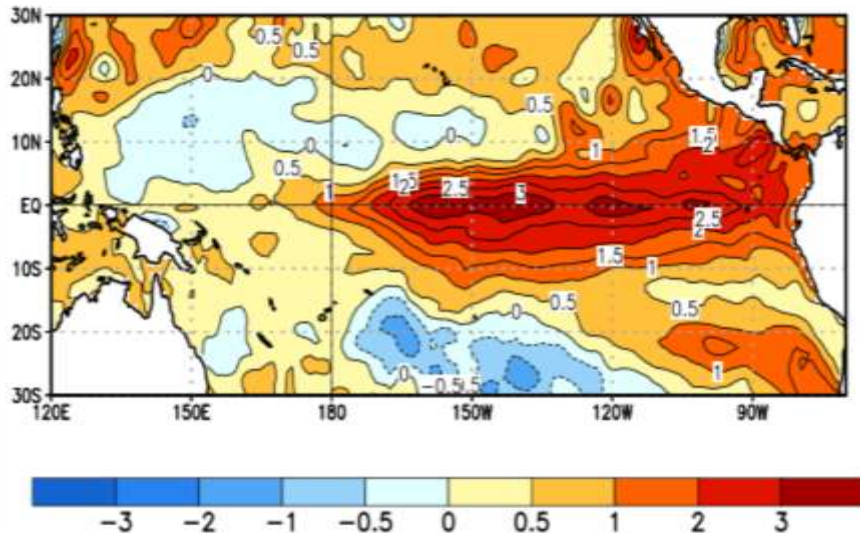


#5: Strong El Nino Transitions to a La Nina Event

- One of the strongest El Nino patterns on record last winter was reversed in a matter of months to a weak La Nina by mid-Summer.

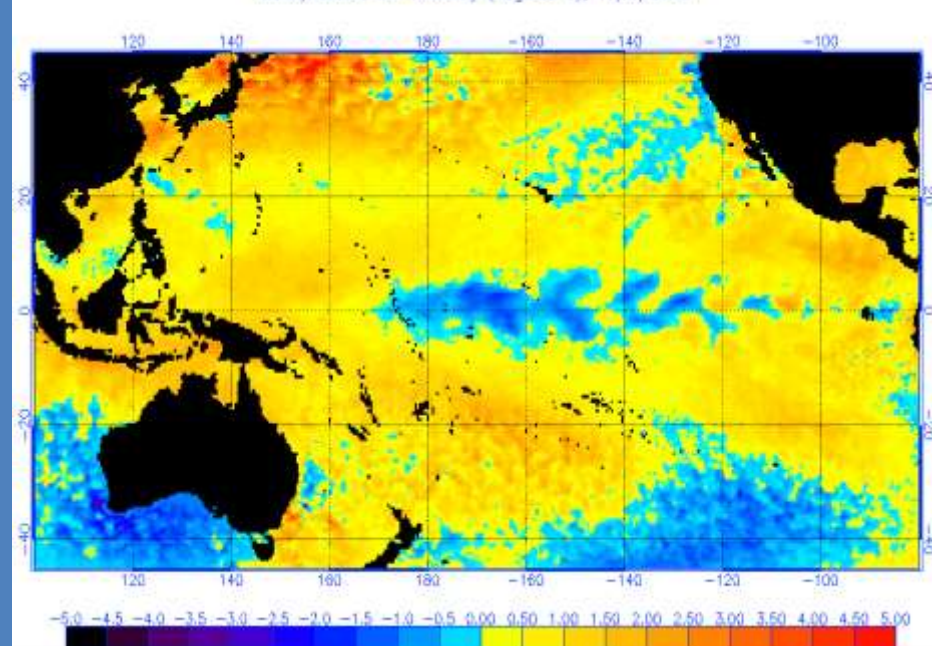
El Niño

Average SST Anomalies
3 JAN 2016 – 30 JAN 2016



La Niña

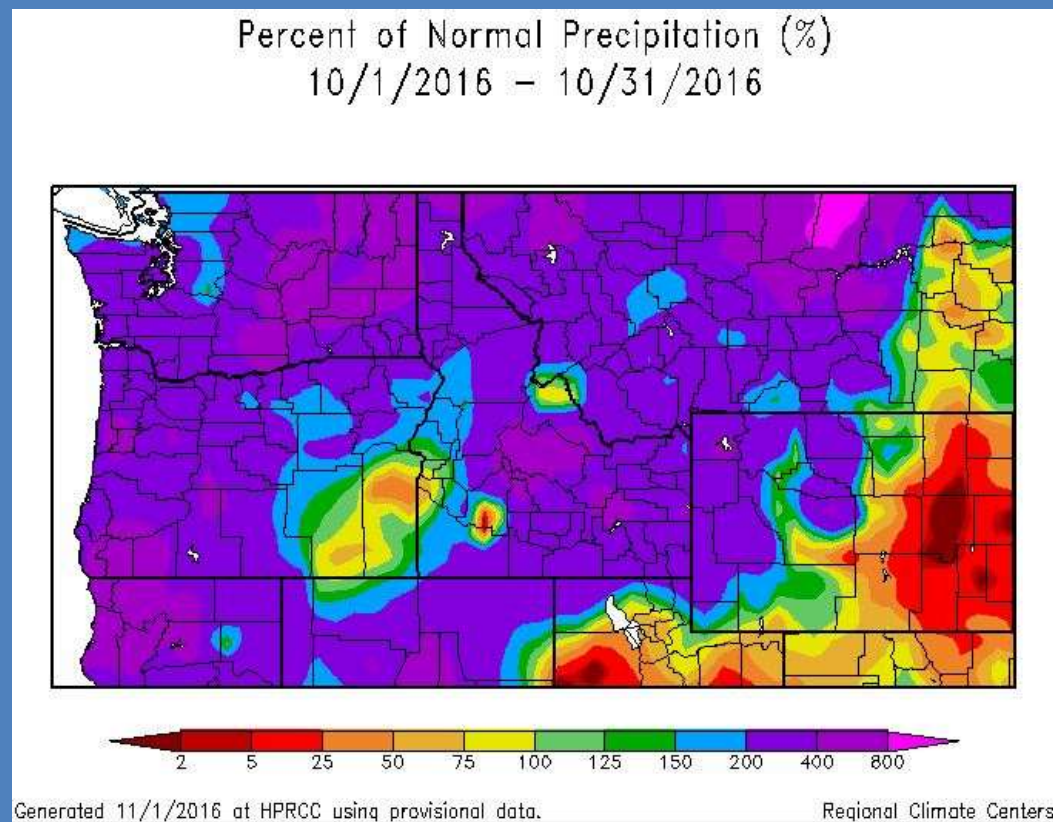
NOAA/NESDIS SST Anomaly (degrees C), 10/3/2016





#4: Record Wet October

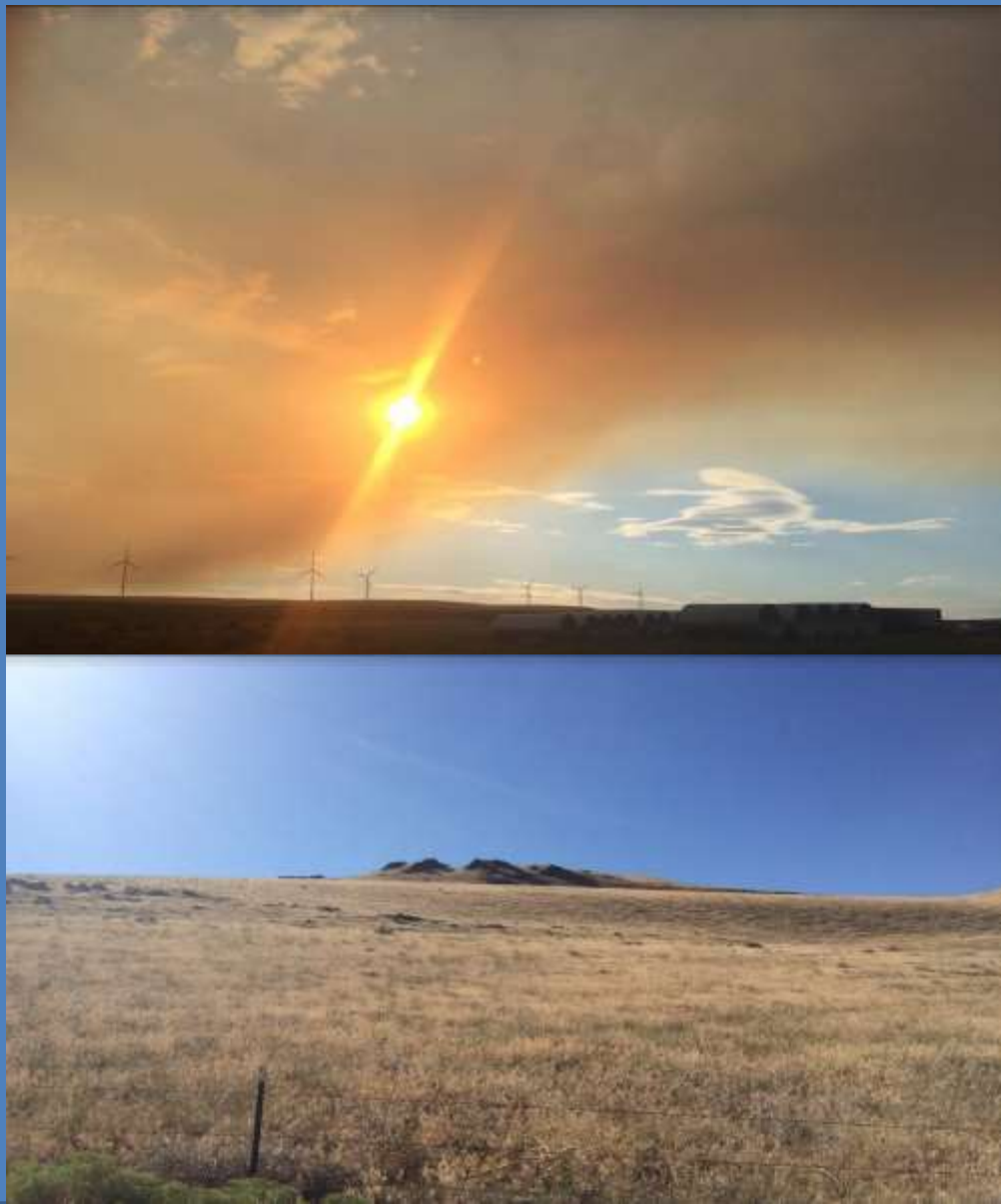
- Rainfall was 1 to 3 inches above normal and ranked in the top 5 wettest Octobers across the region. It was the wettest October on record in Washington at Bickleton, Prosser, Selah, Mill Creek, and Whitman Mission. Trout Lake, Wash. at 14.58 inches beat their previous record by 3.62 inches.





#3: Hot Weather and Fire Outbreak

- Triple digit temperatures and humidity in the 5 to 10 percent range helped to spread an outbreak of fires at the end of July. The Weigh Station fire occurred east of Pendleton and shut down I-84. The Rail Fire near Unity, Oregon burned nearly 42 thousand acres in rugged terrain before being contained in early September. The Range 12 fire started on the Yakima Training Center and burned for a week on 176 thousand acres of mostly grass and sage on BLM, state, and private lands.





#2: Record Cold & Snowy December

- Widespread heavy snow was followed by arctic air during mid-December. Snowfall averaged between 5 and 10 inches across the Columbia Basin and eastern mountains, but ranged up to between 15 and 20 inches in central Oregon. The arctic air following the snow dropped temperatures below zero in many areas. By the end of December, mountain snowpack had surged to 115 - 130 % of normal.



*Yes, those are snow mobile tracks
at the Pendleton Weather Office!*



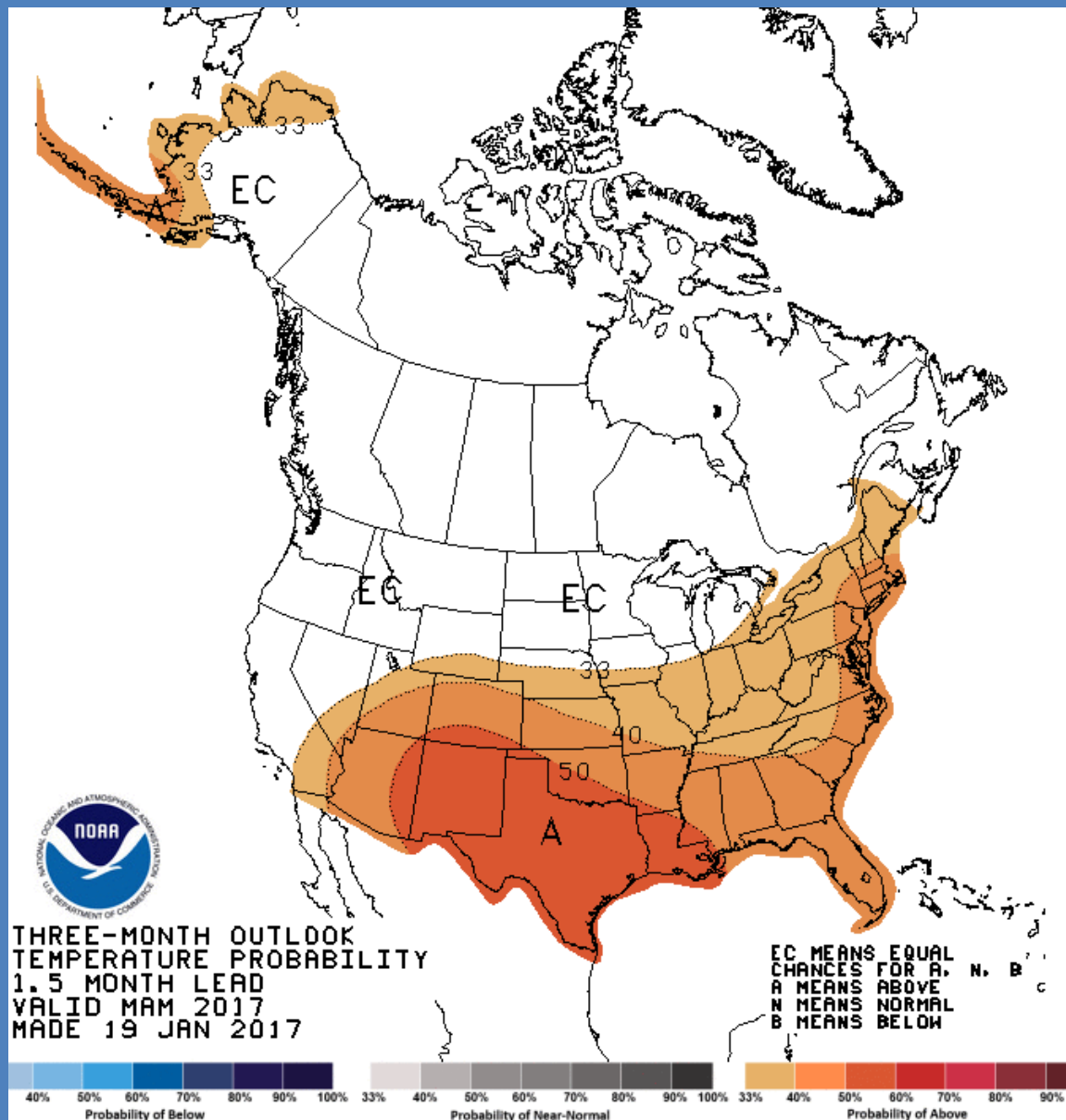
#1: June 8th Tornadic Supercell

- On June 8, a thunderstorm over southern Wheeler County, Oregon rapidly developed into a supercell with golf ball hail, damaging winds to 70 mph, and a brief tornado as it tracked northeast to near Monument and Ukiah.





Spring Temperature Outlook

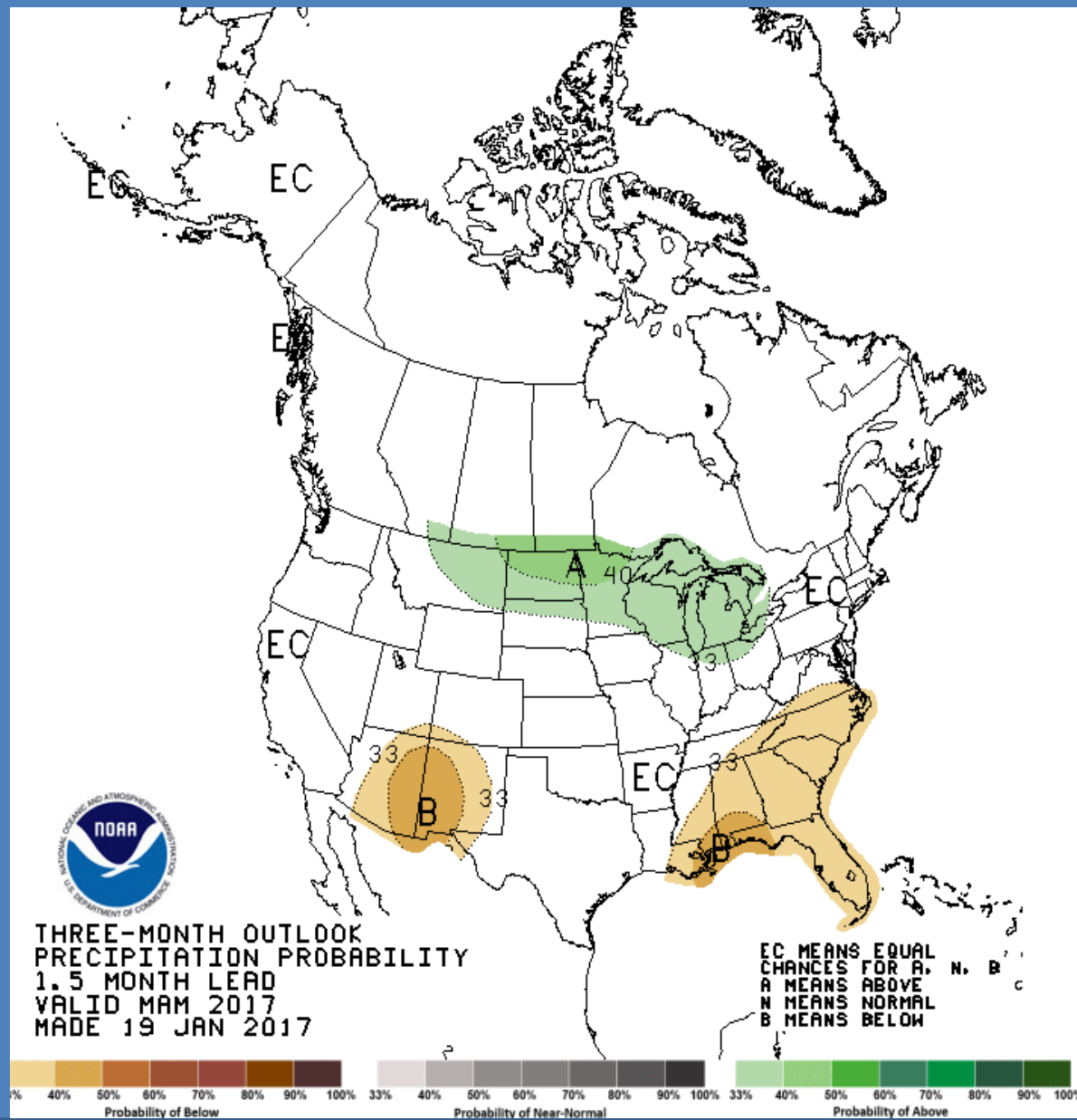


The Climate Prediction Center is forecasting equal chances for above, below, or near average temperatures for the three month period March through May. Temperatures will have a higher probability to be above average in the orange shaded regions; including much of the South and Northeast.



Spring Precipitation Outlook

The Climate Prediction Center is forecasting equal chances for above, below, or near average precipitation for the three month period March through May. Precipitation will have a higher probability to be above average in the green shaded regions; including the Northern Plains and Great Lakes. Below average precipitation amounts are favored across the Southeast.





Thank You!